"*Transformation of corner singularities in presence of small or large parameters*"

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Abstract

We present various examples of problems depending on a parameter that can be small (the size of a geometric perturbation) or large (the conductivity of a metallic material). The geometrical setting includes the presence of polygonal corners. A special feature of these families of problems is that they have a natural limit as the parameter or its inverse tends to zero. Solutions of these problems possess singular types due to the corners. And these types change abruptly at the limit. We show how the introduction of profiles and corner layers on model problems helps to understand the transformation of singularities.